IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-9. (canceled)

10. (currently amended) A method of detecting objects in a vicinity of a road vehicle up to a considerable distance, in which a distance from a moving or stationary vehicle to one or more objects is calculated by distance-based image segmentation using stereo image processing, and characteristics of the detected objects are determined by object recognition in the segmented image regions, the method comprising the acts of:

determining image regions of elevated objects and/or flat objects;

detecting elevated objects and/or flat objects by combining 3D points in accordance with predetermined criteria, the elevated objects being determined through features with similar distance values and the flat objects being determined through features with similar height values;

tracking over time relevant detected objects and determining the distance and lateral position of the relevant detected objects relative to the road vehicle in order to assess dynamic behavior of the relevant detected objects;

determining object hypothesis for performing object recognition, said object hypothesis being verified by comparison with object models;

scanning segmented image regions in accordance with predetermined, statistically verified 2D features of particular relevant detected objects to be

recognized; ~~and~~

comparing the particular relevant detected objects using a neural network for classifying a specific object type;

scanning one of recorded pairs of stereo images for significant features of objects to be registered; and

determining a spacing of at least one object's significant features by comparing respective features in a stereo image from a pair of stereo images with the same, corresponding features, in the other stereo image from the pair of stereo images recorded at the same time;

wherein disparities that occur are evaluated via cross correlation techniques.

11. (previously presented) The method according to claim 10, wherein elevated relevant detected objects are road vehicles and flat relevant detected objects are road markings and boundaries.

12. (previously presented) The method according to claim 10, further comprising the act of determining a relative position and a relative speed of the relevant detected objects relative to one another and to the road vehicle by evaluating a distance measurement, in order to determine an accurate road-lane object association.

13. (previously presented) The method according to claim 12, wherein the relative position and the relative speed of the relevant detected objects are determined in order to assess a relevance of the detected objects to a particular situation.

14. (previously presented) The method according to claim 11, further comprising the act of determining a relative position and a relative speed of the relevant detected objects relative to one another and to the road vehicle by evaluating a distance measurement, in order to determine an accurate road-lane object association.

15. (previously presented) The method according to claim 14, wherein the relative position and the relative speed of the relevant detected objects are determined in order to assess a relevance of the detected objects to a particular situation.

16-18. (canceled)

19. (currently amended) The method according to claim 10 ~~16~~, wherein by determining the spacing of the significant features in a pixel range, 3D points in the road vehicle environment are determined relative to a coordinate system of a measuring device performing the detecting method.

20. (previously presented) The method according to claim 10, wherein said objects are detected by at least one of radar, infrared sensing, and stereoscopic or mono sensing.

21. (currently amended) A method of detecting and recognizing an object in a vicinity of a road vehicle, the method comprising the acts of:

performing distance-based image segmentation to calculate a distance from the road vehicle to an object to be detected;

scanning the segmented image regions in accordance with predetermined, statistically verified 2D features of the object to be detected; ~~and~~

comparing the detected object using a neural network for classifying it as a specific object type,

scanning one of recorded pairs of stereo images for significant features of objects to be registered; and

determining a spacing of at least one object's significant features by comparing respective features in a stereo image from a pair of stereo images with the same, corresponding features, in the other stereo image from the pair of stereo images recorded at the same time;

wherein disparities that occur are evaluated via cross correlation techniques.